

Appln No. 10/748,197
Amdt date May 17, 2011
Reply to Office action of March 17, 2011

REMARKS/ARGUMENTS

Claims 1–3, 5, 6, 8, 12, 14, 20–22 and 24–28 remain in the present application, of which claims 1, 8, 14 and 20 are independent. Claims 4, 7, 9–11, 13, 15–19 and 23 were previously canceled.

Claim rejections under 35 U.S.C. § 103

Claims 1–3, 8, 14, 20, and 24–26 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Narukawa et al. (U.S. Pat. No. 5,834,133, hereinafter “Narukawa ‘133”) in view of Vourlis (U.S. Pat. No. 6,054,233, hereinafter “Vourlis”).

Claims 5, 6, 12, 21, 22, 27, and 28 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Narukawa ‘133 in view of Vourlis and further in view of Narukawa et al. (U.S. Pat. No. 5,508,122, hereinafter “Narukawa ‘122”).

Applicants respectfully traverse as follows:

Claim 1 recites, in relevant part (emphasis added):

the first electrode tab is formed by folding a cut portion of an uncoated area of the first electrode current collector toward an upper edge thereof,

...

the first electrode tab extends past the upper edge of the first electrode current collector, is disposed at substantially the center of the battery unit, at an innermost layer of the battery unit, and partially overlaps and faces the second electrode tab.

Similarly, claim 8 recites, in relevant part (emphasis added):

wherein the first electrode tab is formed by folding a cut portion of the first electrode current collector toward an upper edge thereof...

wherein the first electrode tab extends past the upper edge of the first electrode current collector, is disposed at substantially the center of the battery unit, on an innermost layer of the battery unit, and partially overlaps and faces the second electrode tab.

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Claim 14 recites, in relevant part (emphasis added):

a first electrode tab formed by folding a cut portion of the first electrode current collector toward an upper edge thereof...

the first electrode tab extends past the upper edge of the first electrode current collector, is disposed at substantially the center of the battery unit, on an innermost layer of the battery unit, and partially overlaps and faces the second electrode tab.

Claim 20 recites, in relevant part (emphasis added):

the first electrode tab is formed by folding a cut portion of the first electrode current collector toward an upper edge thereof...

the first electrode tab extends past the upper edge of the first electrode current collector, is disposed at substantially the center of the battery unit, on an innermost layer of the battery unit, and partially overlaps and faces the second electrode tab.

Applicants respectfully submit that the cited references do not appear to disclose or suggest at least the above emphasized limitations of claims 1, 8, 14, and 20.

Pages 3–4 of the Office action recite, in relevant part:

Narukawa et al. discloses the cut tab of the positive electrode is located on the outer surface of the electrode assembly (Figures 6 and 8) but does not disclose that the tab formed by folding is located substantially in the center of the battery electrode unit, at the innermost layer of the electrode unit. However this would be within the skill of an ordinary artisan start the winding electrode unit with the folded portion since this would apply pressure to the folded area and since there is an infinite number of predictable solutions.

Therefore, the “positive electrode collector tab 221” formed from the “incision portion 222” of Narukawa ‘133 appears to be equated with the “first electrode tab” of claims 1, 8, 14, and 20.

However, Applicants respectfully submit that there is no apparent reason why a person of ordinary skill in the art at the time the invention was made would have modified Narukawa ‘133 to arrive at the above limitations of claims 1, 8, 14, and 20.

For example, column 9, lines 59–61 of Narukawa ‘133 recite (emphasis added):

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A U-shaped incision portion 222 defined by three incision lines extending through the positive-current collector is formed in the two-side current collector-exposed portion.

Furthermore, column 10, lines 28–39 recite (emphasis added):

The positive-electrode plate 220 and the negative-electrode plate 230 are rolled with the separator 250 of polyethylene interposed therebetween to form the electrode roll 210 such that the one-side current collector-exposed portion of the positive-electrode plate 220 faces outward and the two-side current collector-exposed portion thereof is located on the outermost periphery of the electrode roll 210. This permits the current collector-exposed portion to come in contact with the interior surface of the battery casing, thereby providing electrical connection between the positive electrode plate and the battery casing also functioning as a positive-electrode external terminal.

Therefore, because the “incision portion 222” is formed on the “two-side current collector-exposed portion” and because the “two-side current collector-exposed portion” is described as being located at an “outermost periphery of the electrode roll 210” so that “the current collector-exposed portion [can] come in contact with the interior surface of the battery casing, thereby providing electrical connection between the positive electrode plate and the battery casing also functioning as a positive-electrode external terminal”, there is no apparent reason why a person of ordinary skill in the art at the time the invention was made would have modified Narukawa ‘133 and combined it with the disclosures of Vourlis and Narukawa ‘122 to arrive at the claimed embodiments of claims 1, 8, 14, and 20 because a person of ordinary skill in the art at the time the invention was made would have understood that moving the “two-side current collector-exposed portion” to the center of the “electrode roll 210” would have removed the electrical connection between the battery casing and the positive electrode and would have reduced the amount of active material located within the volume of the battery, thereby reducing energy density.

Therefore, Applicants respectfully submit there is no apparent reason why a person of ordinary skill in the art at the time the invention was made would have combined the cited references to arrive at a first electrode tab “disposed at substantially the center of the battery unit,

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on an innermost layer of the battery unit" of the claimed embodiments of claims 1, 8, 14, and 20. As such, Applicants respectfully request that the rejections of these claims be withdrawn and that these claims be allowed.

Because claims 2, 3, 5, 6, and 24–26 depend, directly or indirectly, from claim 1; claim 12 depends directly from claim 8; claims 27 and 28 depend, directly or indirectly, from claim 14; and claims 21 and 22 depend, directly or indirectly, from claim 20, they each incorporate all the terms and limitations of their respective base claim in addition to other limitations which further patentably distinguish these claims over the cited references. Therefore, Applicants respectfully request that the rejections of claims 2, 3, 5, 6, 12, 21, 22, and 24–28 be withdrawn and that these claims be allowed.

Concluding remarks

In view of the foregoing remarks, Applicants earnestly solicit the timely issuance of a Notice of Allowance with claims 1–3, 5, 6, 8, 12, 14, 20–22 and 24–28. If there are any remaining issues that can be addressed over the telephone, the Examiner is cordially invited to call the Applicants' attorney at the number listed below.

Respectfully submitted,
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